Agenda

1. Introduction
2. Background, Purpose & Need
3. Ramp Operation & Monitoring
4. Environmental Overview
5. Project Plans and Approach
6. Summary/Contact Information
7. Questions/Comments?

Introduction

- Housekeeping
- Project Team:
  - **Noah Karberg**
    - Airport Manager, ACK
  - **Preston Harimon**
    - Assistant Airport Manager, ACK
  - **Cameron Woods**
    - Environmental Coordinator, ACK
  - **Richard Lasdin**
    - Principal Engineer, McFarland-Johnson

Introduction

- General project description & location:

Background

ACK:

- Town of Nantucket Enterprise Fund
- Governed via Airport Commission
- Federally obligated airport
- Held accountable to FAA standards (Safety)
- Fixed Base Operator (Revenue)

Background

Environmental Permitting Process:

- Package of 5-year Capital projects
- Triggered two major and parallel reviews:
  - National Environmental Policy Act (NEPA)
  - Massachusetts Environmental Policy Act (MEPA)
- Review culminated in:
  - NEPA Environmental Assessment w/ finding of no Significant Impact issued 5/12/2021
  - MEPA Environmental Impact Report w/ Certificate issued 2/5/2021

Background

Environmental Permitting Process (cont):

- MEPA Environmental Impact Report w/ Certificate issued 2/5/2021
  - Massachusetts Endangered Species Program, Conservation and Management Permit #022-392.DFW issued 4/13/2022
  - Nantucket Conservation Commission, Approval and Order of Conditions 2/2/2022
  - United States Fish and Wildlife Service, Northern Long-eared bat Section 7 Consultation Process filed 9/8/2023

Background

South Ramp
Expanded in 1998

Further expansion:

- Identified in 2007
- Planned for 2012
- Cost of $5.6M

Background

Project History:

- 16 years of identified need
- Recent cost escalation
- Deeper pavement box
- Elective mitigation

CIP Year	Project Year	Project Cost
2007	2012	$ 5,660,373
2008	2014	$ 4,888,888
2009	2014	$ 4,888,888
2010	2013	$ 4,666,666
2011	2014	$ 4,700,000
2012	2015	$ 4,700,000
2013	2016	$ 4,700,000
2014	2017	$ 4,600,000
2015	2018	$ 4,600,000
2016	2021	$ 4,600,000
2017	2021	$ 4,600,000
2018	2022	$ 4,555,556
2019	2024	$ 6,700,000
2020	2022	$15,250,000
2021	2023	$18,500,000
2022	2023	$18,500,000
2023	2023	$40,817,638

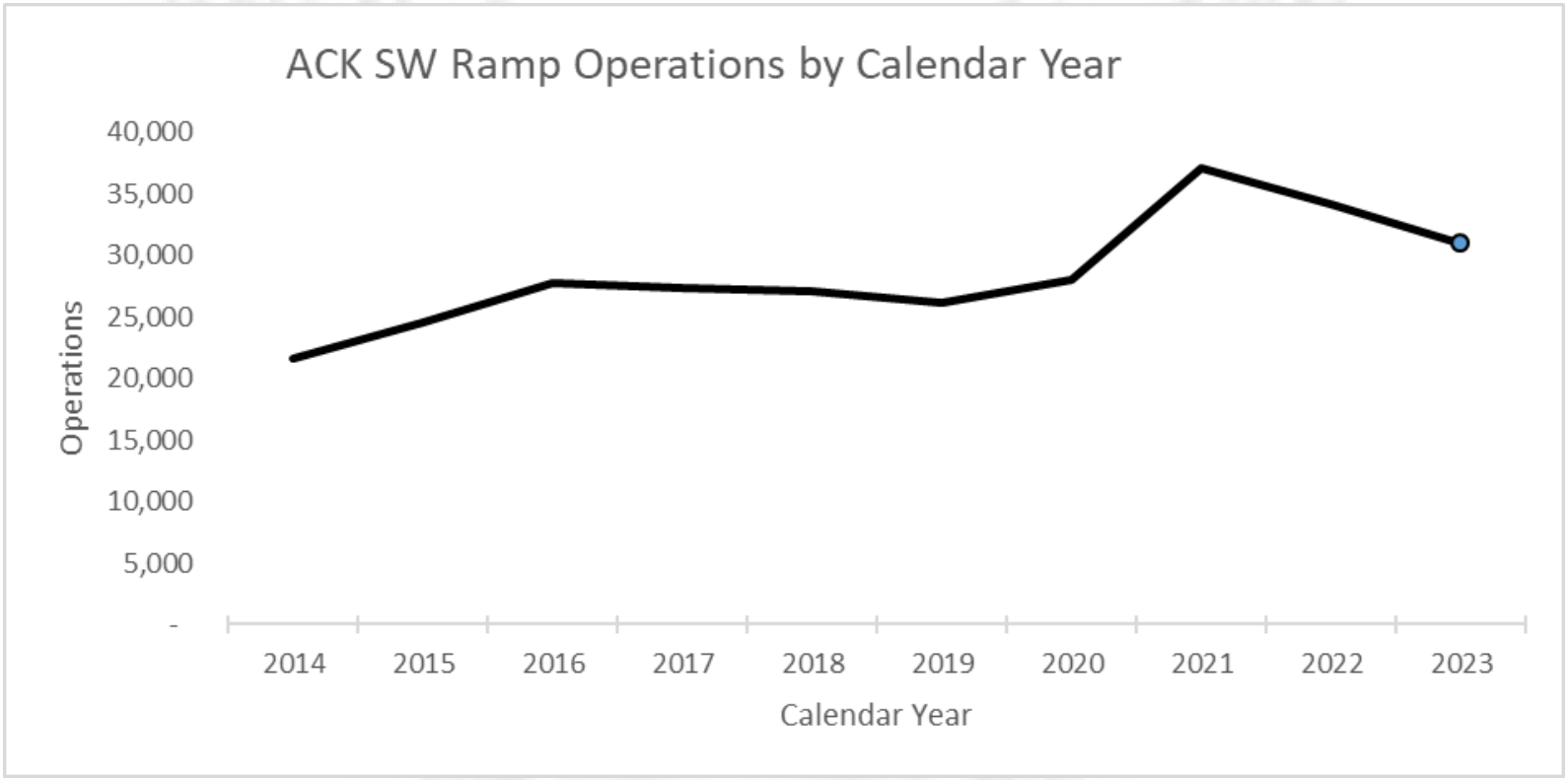
Background

Project Cost: $40,817,638.64

- Grant Funded: $34,211,849.04
  - FAA Discretionary: $28,975,586.75
  - BIL-AIG: $2,824,689.60
  - FAA Entitlement: $610,949.06
  - MassDOT Aeronautics: $1,800,623.63
- Airport Funded: $6,605,789.60
  - Grant ineligible: $4,805,165.97
  - Sponsor Share: $1,800,623.63

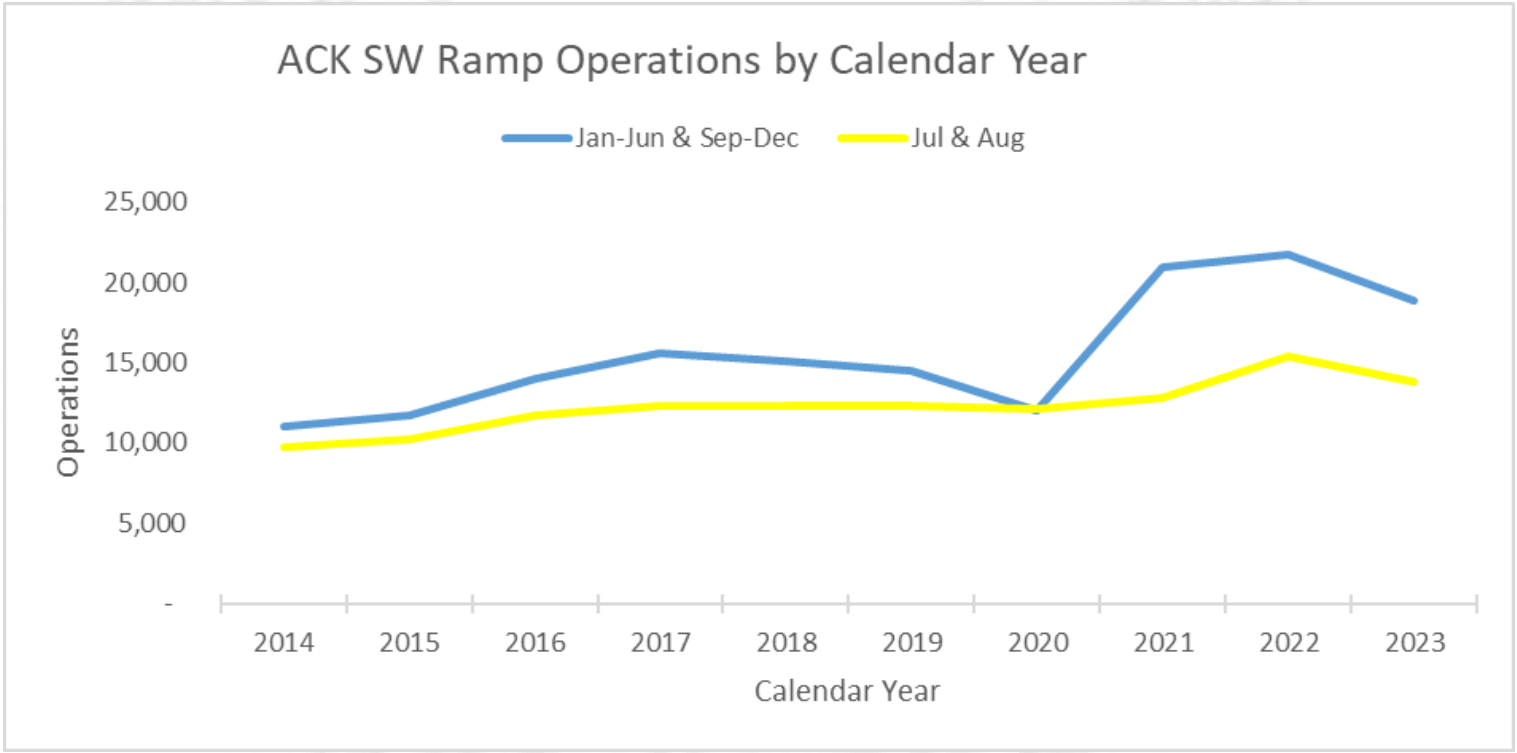
Purpose and Need

SW Ramp operations have increased (annually)…



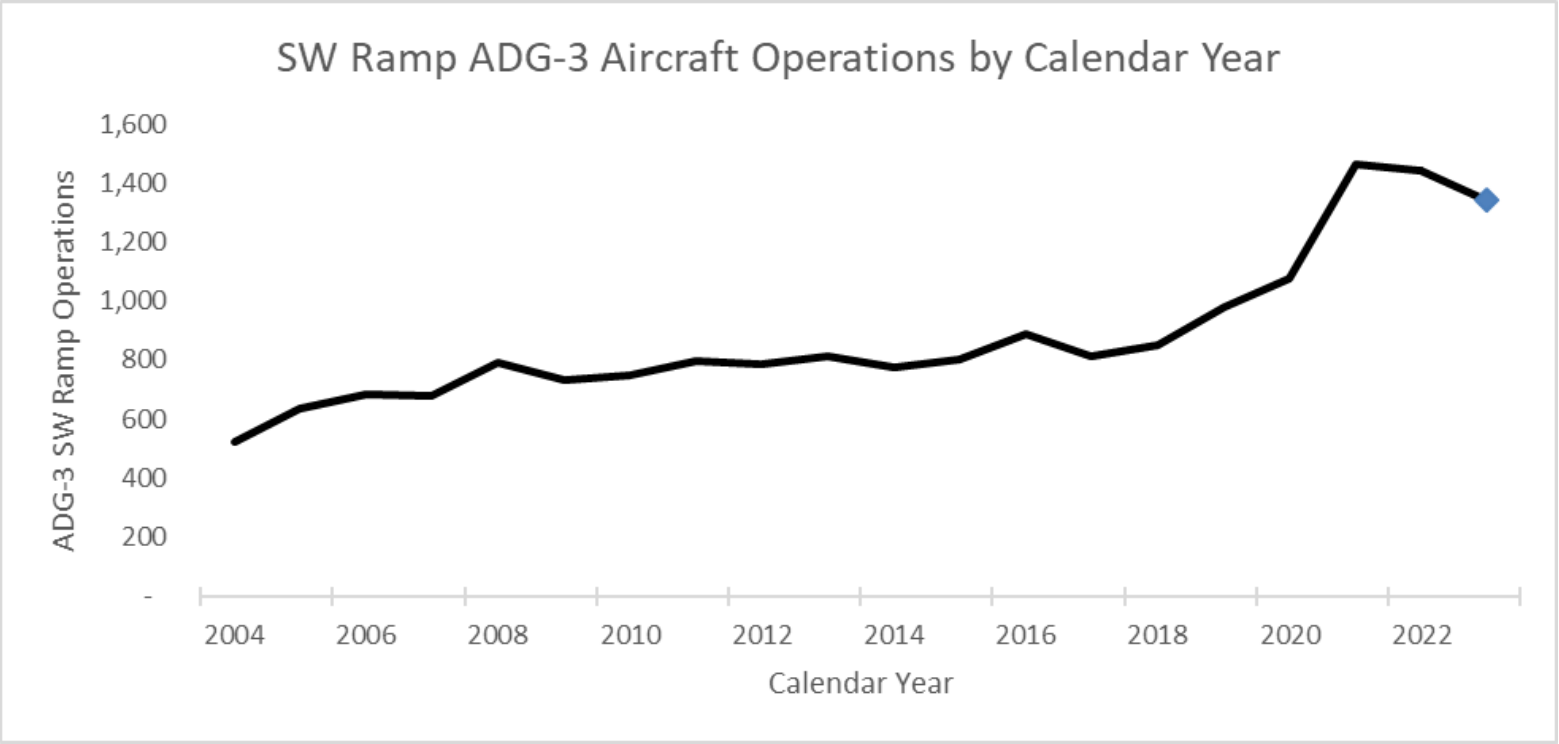
Purpose and Need

…predominantly due to non-peak & off-season travel.



Purpose and Need

Most impactful: arriving aircraft are larger.



Purpose and Need

Arriving aircraft are larger (cont).

G-V	→	**G-VII**
Length: 96’		110’ (+15%)
Wingspan:94’		103’ (+10%)
Area: 9,024 ft^2		11,330 ft^2 (+26%)

C402C	→	**PC-12**
Length: 36’		47’ (+31%)
Wingspan:44’		53’ (+20%)
Area: 1,584 ft^2		3,021 ft^2 (+91%)

Same trend across all aircraft classes

Purpose and Need

Lack of space is a safety and operational deficiency

Purpose and Need

Best available improvement over the status quo.

- Aircraft are already operating in/adjacent to expansion (1&2)
- Inadequate aircraft separation leading to conflicts.

Purpose and Need

Best available improvement over the status quo.

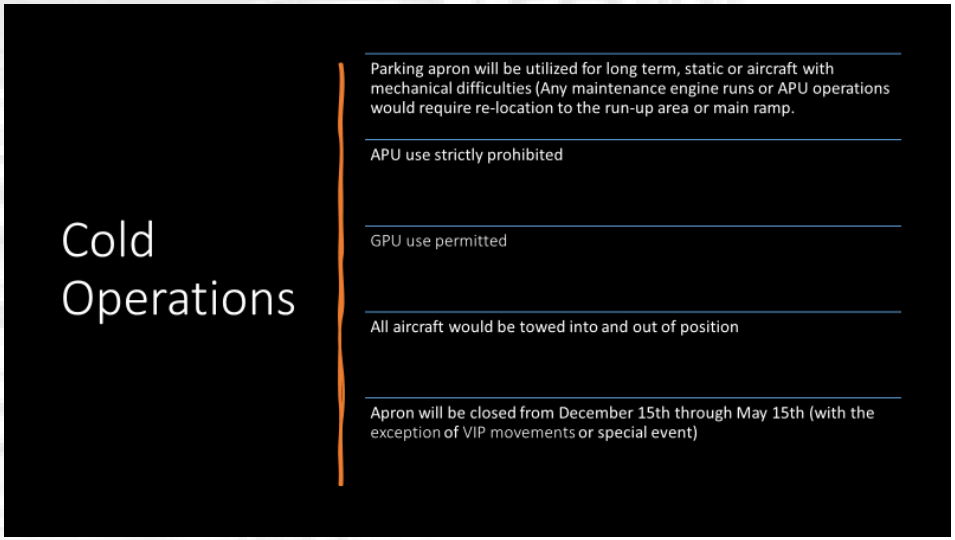
- Congestion increases conflicts/taxi time

  (GLEX vs. CJ3)

Purpose and Need

Project enables ACK ownership of noise issues.

- Noise berm
- Ramp noise monitoring
- Emissions modeling
- Ramp management
- Initiatives under study
  - Quiet hours
  - Preferred operator
  - Noise abatement


Cold Operations
Parking apron will be utilized for long term, static or aircraft with mechanical difficulties (Any maintenance engine runs or APU operations would require re-location to the run-up area or main ramp.
APU use strictly prohibited
GPU use permitted
All aircraft would be towed into and out of position
Apron will be closed from December 15th through May 15th (with the exception of VIP movements or special event)

Ramp Management & Monitoring

Operational Plan

- High traffic demands during peak times poses challenges for Line Service / Operations Personnel. Coordinating traffic flow and assigning parking positions takes a high level of skill to ensure safe and efficient movement of aircraft.

Ramp Management & Monitoring

Operational Plan

- South Apron Expansion Location (zoomed out)

Ramp Management & Monitoring

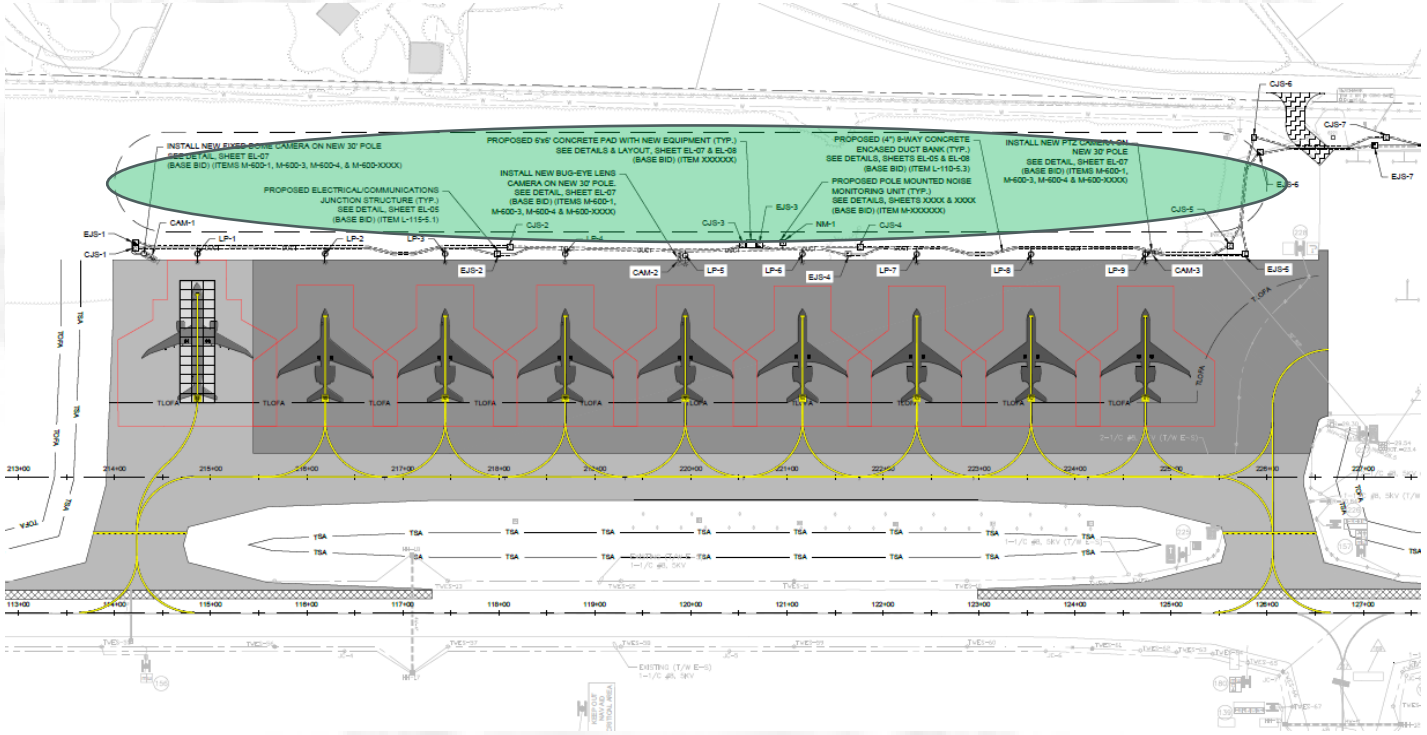
Operational Plan

- South Apron Expansion and Existing General Aviation Apron (zoomed in)

Ramp Management & Monitoring

Operational Plan

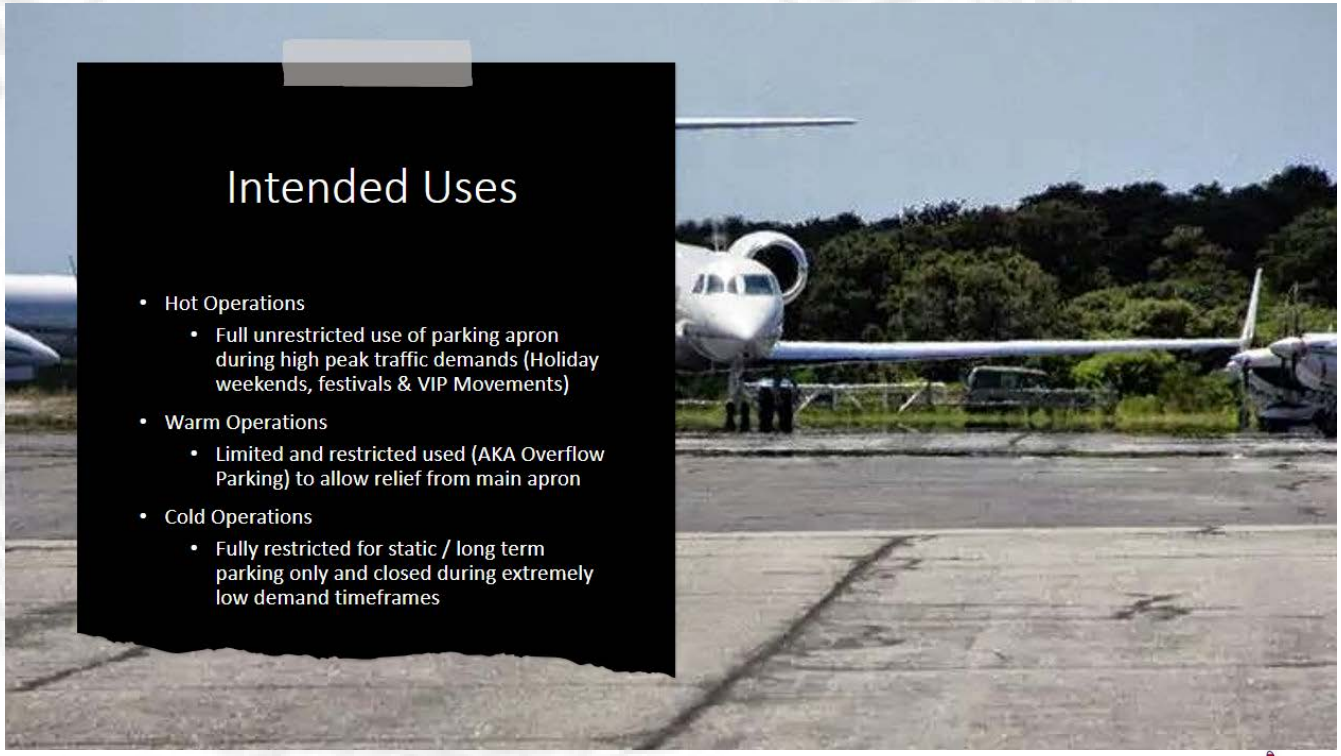
- New South Apron Parking Configuration and Noise Berm (shown in green)


PROPOSED 6'x6' CONCRETE PAD WITH NEW EQUIPMENT (TYP.)
SEE DETAILS & LAYOUT, SHEET EL-07 & EL-08
(BASE BID) (ITEM XXXXXXX)
INSTALL NEW BUG-EYE LENS CAMERA ON NEW 30' POLE.
SEE DETAIL, SHEET EL-07
(BASE BID) (ITEMS M-600-1, M-600-3, M-600-4 & M-600-XXXX)
PROPOSED ELECTRICAL/COMMUNICATIONS JUNCTION STRUCTURE (TYP.)
SEE DETAIL, SHEET EL-05
(BASE BID) (ITEM L-115-5.1)
PROPOSED (4") 8-WAY CONCRETE ENCASED DUCT BANK (TYP.)
SEE DETAILS, SHEETS EL-05 & EL-08
(BASE BID) (ITEM L-110-5.3)
PROPOSED POLE MOUNTED NOISE MONITORING UNIT (TYP.)
SEE DETAILS, SHEETS XXXX & XXXX
(BASE BID) (ITEM M-XXXXXXX)
INSTALL NEW PTZ CAMERA ON NEW 30' POLE
SEE DETAIL, SHEET EL-07
(BASE BID) (ITEMS M-600-1, M-600-3, M-600-4 & M-600-XXXX)
TLOFA
TSA

Ramp Management & Monitoring

Operational Plan

- There are five intended uses (Operations) for the new apron.
  - Hot
  - Warm
  - Cold
  - VIP
  - Mixed


Intended Uses
Hot Operations
Full unrestricted use of parking apron during high peak traffic demands (Holiday weekends, festivals & VIP Movements)
Warm Operations
Limited and restricted used (AKA Overflow Parking) to allow relief from main apron
Cold Operations
Fully restricted for static / long term parking only and closed during extremely low demand timeframes

Ramp Management & Monitoring

Operational Plan

- **HOT OPS (least restrictive)**
  - Apron will be utilized to the full extent possible for aircraft operations during peak times.
    - Memorial Day
    - 4th of July
    - POPS
    - Labor Day
    - Christmas Stroll
    - Other Festivals & Holidays that may apply (Film, Comedy, book & Thanksgiving)
  - All aircraft will power in / towed out
  - APU monitoring & restrictions will apply

Ramp Management & Monitoring

Operational Plan

- **WARM OPS (moderately restrictive)**
  - Apron expansion will be utilized for aircraft overflow parking to allow relief from the main apron.
    - This means aircraft will be towed on and off the new apron thus allowing additional space for inbound aircraft to utilize the main apron for passenger pick up and drop offs (AKA Quick Turns)
    - Aircraft that were relocated to the new apron expansion will be towed back to the main apron for crew members to prepare the aircraft for departure or the aircraft will be towed to the nearest taxiway for departure routing by Air Traffic Control prior to engine start.
  - APU monitoring and restrictions will apply
  - Pilots will be highly encouraged to utilize GPU's for aircraft per-flight and engine start ups.
  - Aircraft arrivals and departures will be monitored, tracked and logged through x1-FBO software
    - This system allows staff the ability to track aircraft for specific departure times and current ramp locations

Ramp Management & Monitoring

Operational Plan

- **COLD OPS (most restrictive)**
  - New parking apron will be utilized for long term, static or aircraft with mechanical difficulties.
  - All aircraft will be towed in / towed out
  - APU (Auxiliary Power Unit) strictly prohibited
  - GPU (Ground Power Unit) use permitted
    - Allows aircraft mechanics the ability to work on Aircraft without the APU running.
  - Apron will be closed from December 15th through May 15th (except for VIP Movements or special events)

Ramp Management & Monitoring

Operational Plan

- **Combine OPS (HALF AND HALF)**
  - The apron has the potential be utilized as combined (mixed) operations. The southwest end of the apron could be used for static / longer term storage of aircraft while the northeast portion used as Warm or Hot Operations.
  - Benefits!
    - Reduces aircraft congestion from main General Aviation apron
    - Allows for safer aircraft movements, while taxiing or being towed on the apron.
    - Greatly reduces or possibly eliminates the need to park aircraft in movement areas (runup areas, taxiway, runways)

Ramp Management & Monitoring

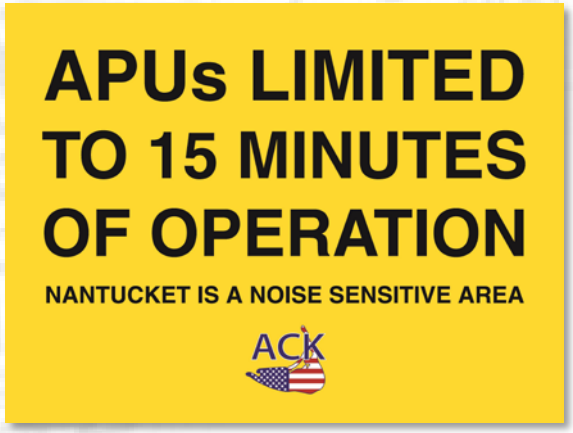
Operational Plan

- **VIP Movements**
  - The new apron could be used exclusively used for VIP Movements which include Presidential, Governors, Senators, Foreign Dignitaries, Candidates and their Support Missions / security requirements

Ramp Management & Monitoring: Noise

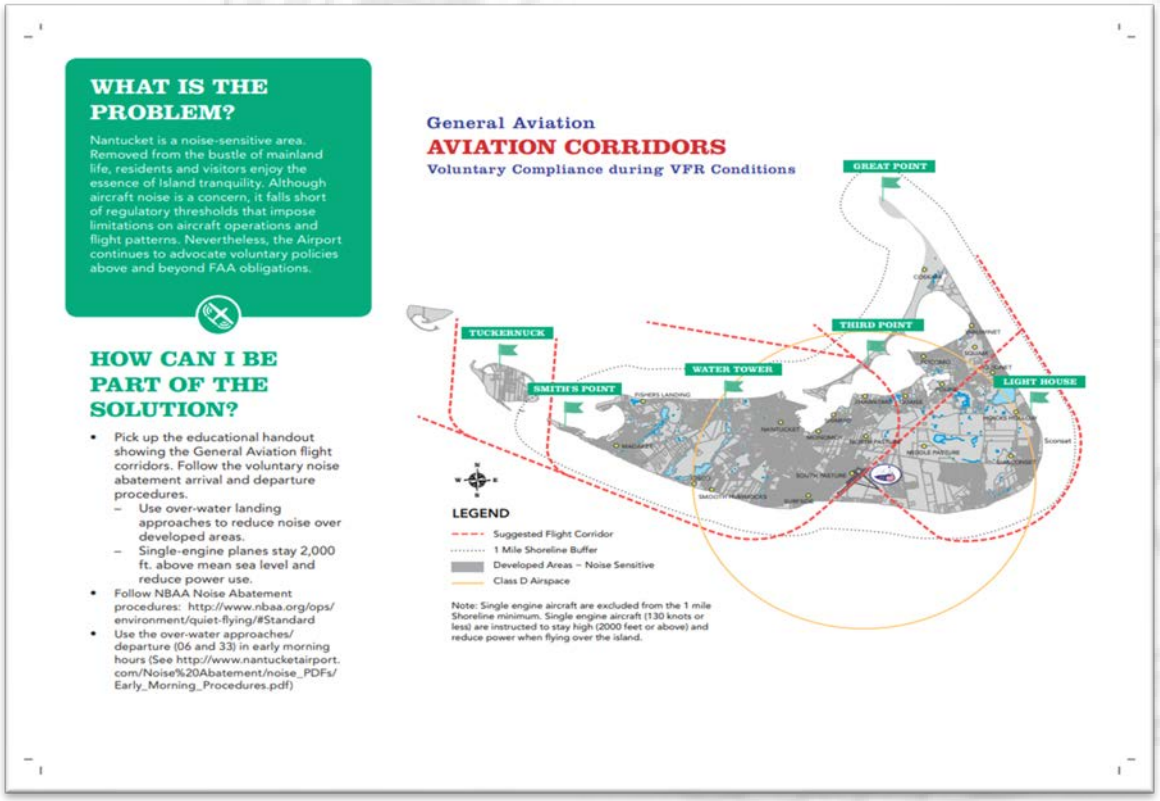
Action ACK is taking to manage noise on the ground:

- Limiting APU (Auxiliary Power Units) run time to 15 minutes
  - If an aircraft exceeds this, ACK staff communicates with them and logs the exceedance in the Airport's 'APU log'
- Directing aircraft to park with the engines facing away from houses



Ramp Management & Monitoring: Noise

Action ACK is taking to manage noise more broadly:



WHAT IS THE PROBLEM?

Nantucket is a noise-sensitive area. Removed from the bustle of mainland life, residents and visitors enjoy the essence of Island tranquility. Although aircraft noise is a concern, it falls short of regulatory thresholds that impose limitations on aircraft operations and flight patterns. Nevertheless, the Airport continues to advocate voluntary policies above and beyond FAA obligations.

HOW CAN I BE PART OF THE SOLUTION?

- Pick up the educational handout showing the General Aviation flight corridors. Follow the voluntary noise abatement arrival and departure procedures.
  - Use over-water landing approaches to reduce noise over developed areas.
  - Single-engine planes stay 2,000 ft. above mean sea level and reduce power use.
- Follow NBAA Noise Abatement procedures: http://www.nbaa.org/ops/environment/quiet-flying/#Standard
- Use the over-water approaches/departure (06 and 33) in early morning hours (See http://www.nantucketairport.com/Noise%20Abatement/noise_PDFs/Early_Morning_Procedures.pdf)

General Aviation

AVIATION CORRIDORS

Voluntary Compliance during VFR Conditions

Note: Single engine aircraft are excluded from the 1 mile Shoreline minimum. Single engine aircraft (130 knots or less) are instructed to stay high (2000 feet or above) and reduce power when flying over the island.

- Promoting and encouraging compliance with ACK's voluntary noise abatement guidelines and flight path corridors (left)
  - Conducting monthly flight audits to determine adherence
  - Conducting investigations on every complaint received
  - In both cases: following up with PICs in violation of the guidelines

Ramp Management & Monitoring: Noise

Action ACK is taking to monitor noise:

- In addition to monthly compliance monitoring and APU use logging, the Airport is installing two (2) permanent Noise Monitoring Terminals (NMT)s along the south ramp area of the airport.

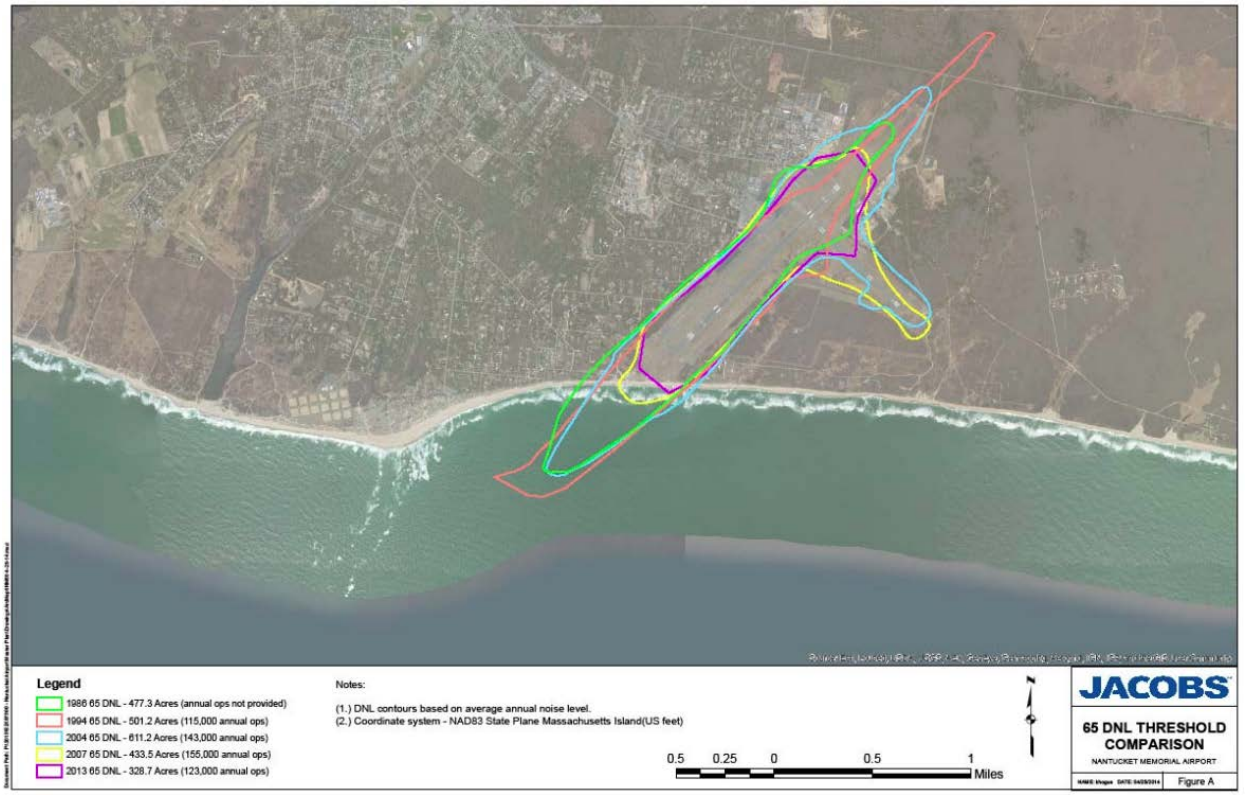
NOTE:

- NMT 1 will be located near the existing ramp
- NMT 2 will be located near the center rear of the proposed south ramp apron.

Management/Monitoring Results

Noise abatement efforts are successfully minimizing the area of impact.

- DNL (day-night average sound level) is a noise metric used to measure the average sound level over a 24-hour period
- The FAA has adopted DNL 65 dBA as the threshold of significant noise exposure.
- **The Airport's 65 DNL footprint has improved dramatically since a 1986 study.**


Legend
1986 65 DNL - 477.3 Acres (annual ops not provided)
1994 65 DNL - 501.2 Acres (115,000 annual ops)
2004 65 DNL - 611.2 Acres (143,000 annual ops)
2007 65 DNL - 433.5 Acres (155,000 annual ops)
2013 65 DNL - 328.7 Acres (123,000 annual ops)
Notes:
(1.) DNL contours based on average annual noise level.
(2.) Coordinate system - NAD83 State Plane Massachusetts Island(US feet)
0.5 0.25 0 0.5 1
Miles
JACOBS
65 DNL THRESHOLD COMPARISON
NANTUCKET MEMORIAL AIRPORT
Figure A

Ramp Management & Monitoring: Noise

Looking ahead…

- ACK is committed to learning, growing, and improving our noise abatement policies. Ideas in the brainstorming phase:
  - Establishing a program that blends human intelligence and technological monitoring to determine precise APU run time for each individual aircraft in a more efficient/accurate way
  - Incentivizing stricter adherence to ACK's Fly Friendly noise abatement guidelines for aircraft

Ramp Management & Monitoring: Emissions

HMMH Air Emissions Dispersion Model Methodology

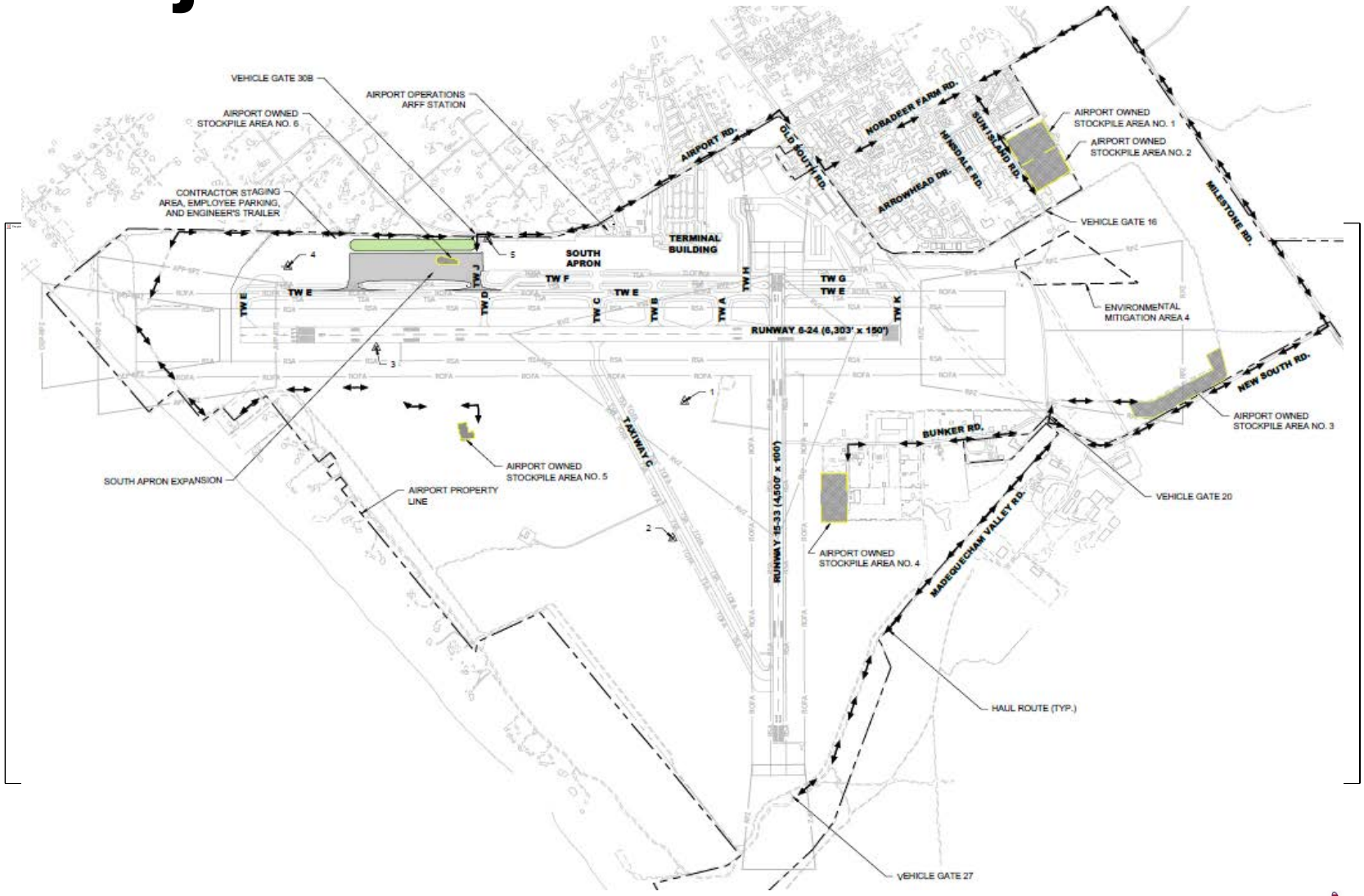
- Acquire historical Nantucket Weather data for the month of July.
- Process the weather data to generate emission dispersion weather files utilizing the EPA AERMOD meteorological processors.
- Utilize 2023 airport flight data from the peak month of July to obtain a representative jet aircraft fleet mix servicing the airport.
- Setup airfield operations in the FAA's Aviation Environmental Design Tool (AEDT) to model the Existing conditions and proposed South Apron expansion.
- Input the processed weather data, aircraft fleet mix, and updated airfield layout into the AEDT model
- Input surrounding area receptor grid to estimate emission concentrations at nearby locations

Ramp Management & Monitoring: Emissions

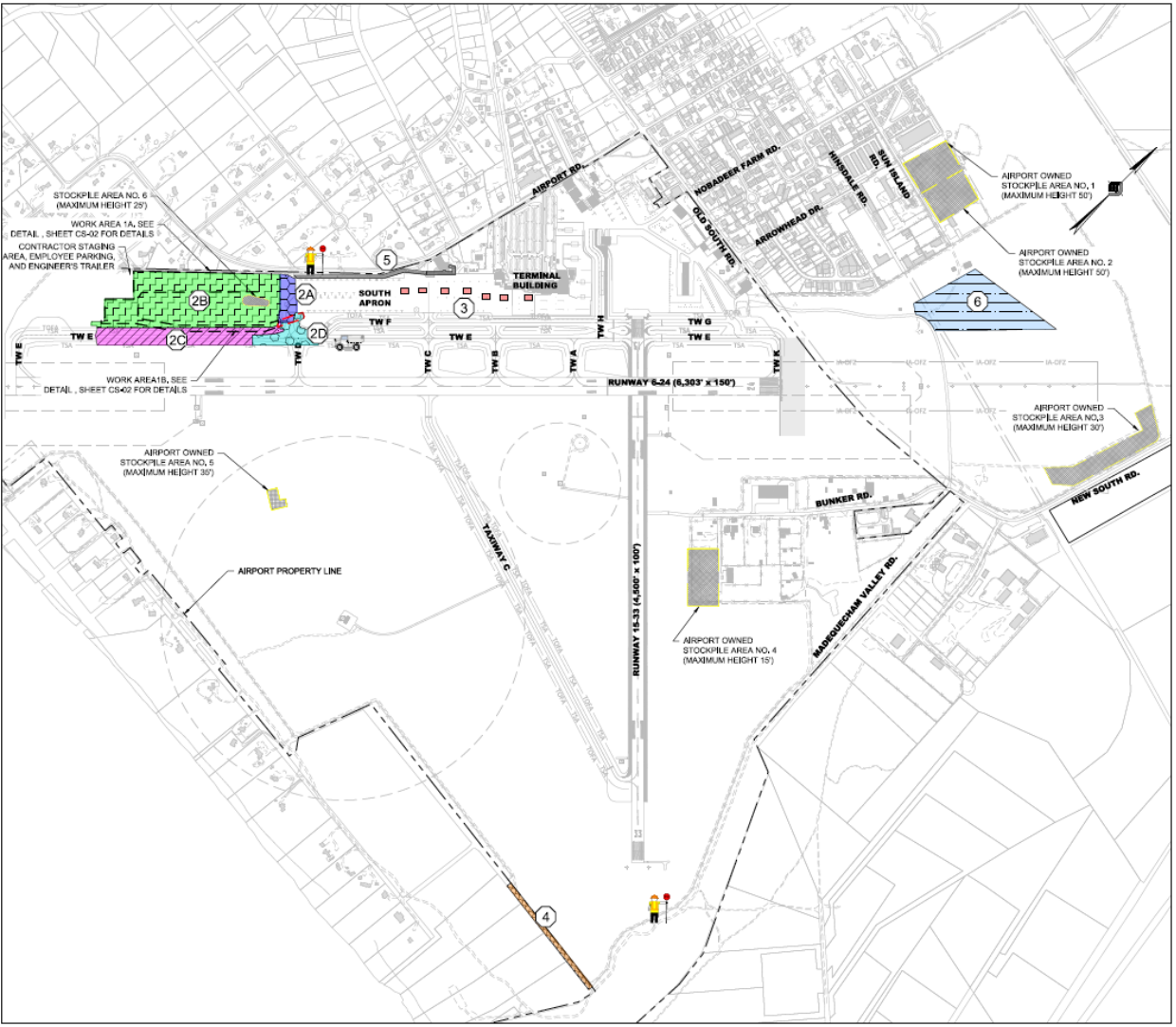
Emissions Dispersion Analysis

- Quantify emissions dispersion in AEDT at nearby receptor locations for the Existing and Proposed South Apron expansion.
- Compare the change in emissions dispersed into nearby locations from the two conditions.
- Prepare graphics and tables showing the modeling results.

Project Overview and Access

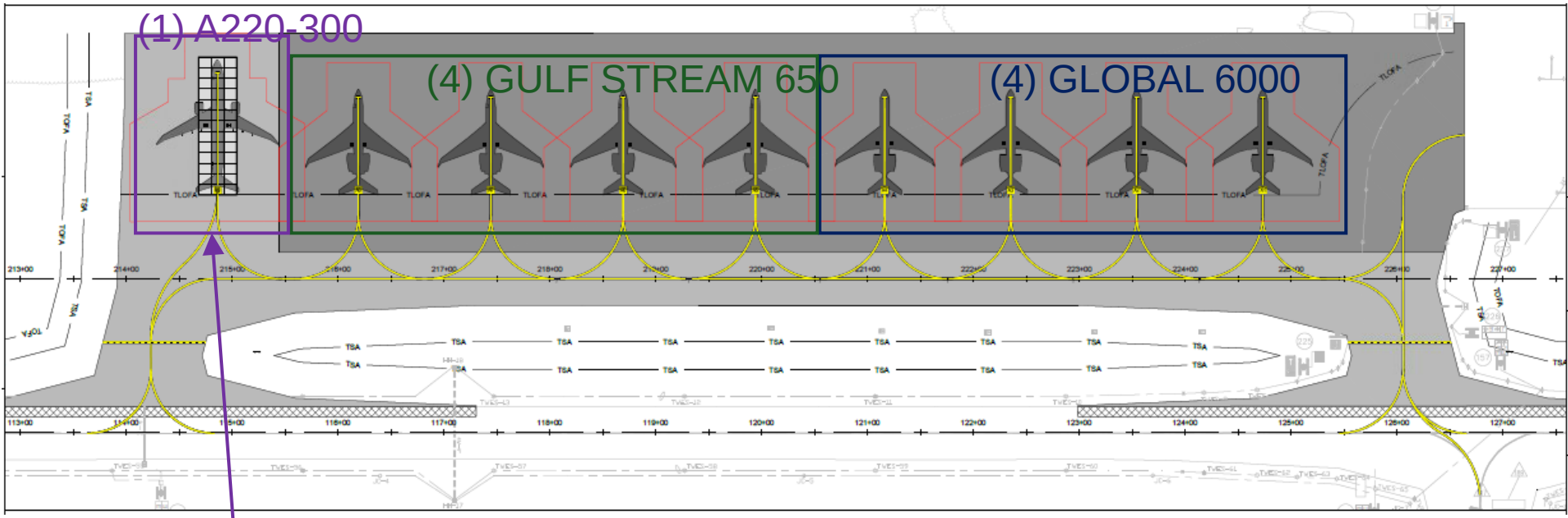


Construction Phasing



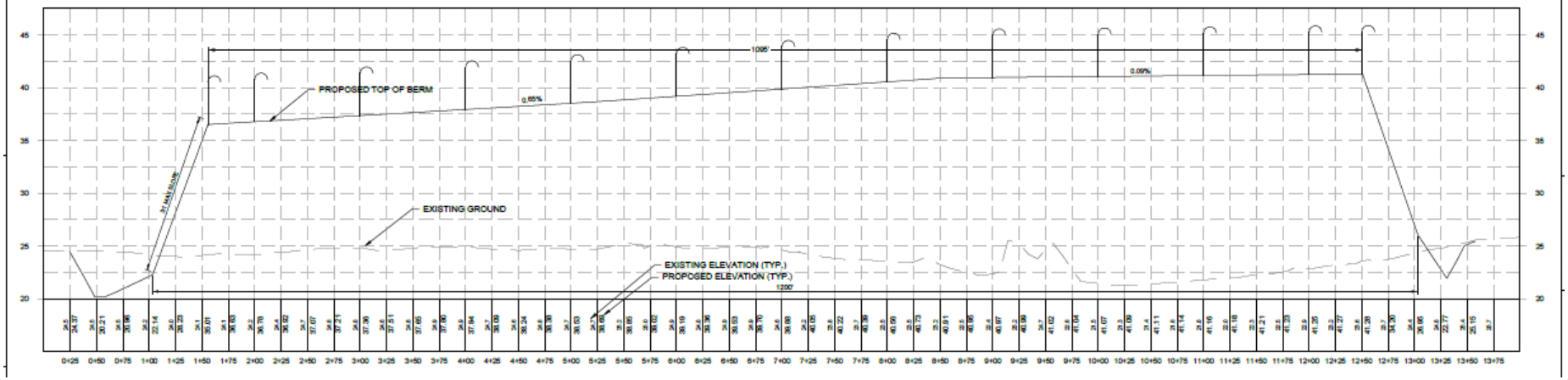
PROJECT PHASING TABLE	
PHASE	DESCRIPTION OF WORK
1A	CONSTRUCTION OF NEW DRAINAGE SYSTEM
1B	CONSTRUCTION OF BERM
2A	CONSTRUCT TAXIWAY ADJACENT TO EXISTING APRON
2B	CONSTRUCTION OF APRON EXPANSION
2C & 2D	CONSTRUCTION ADJACENT TO TAXIWAY E
3A-3G	REPLACE DRAINAGE STRUCTURES ON EXISTING APRON
5	CONSTRUCTION OF NEW DUCTBANK
6	MITIGATION AREA WORK
150 TOTAL CALENDAR DAYS ANTICIPATED CONSTRUCTION START DATE: MARCH 4TH, 2024	

Apron Aircraft and Parking Layout

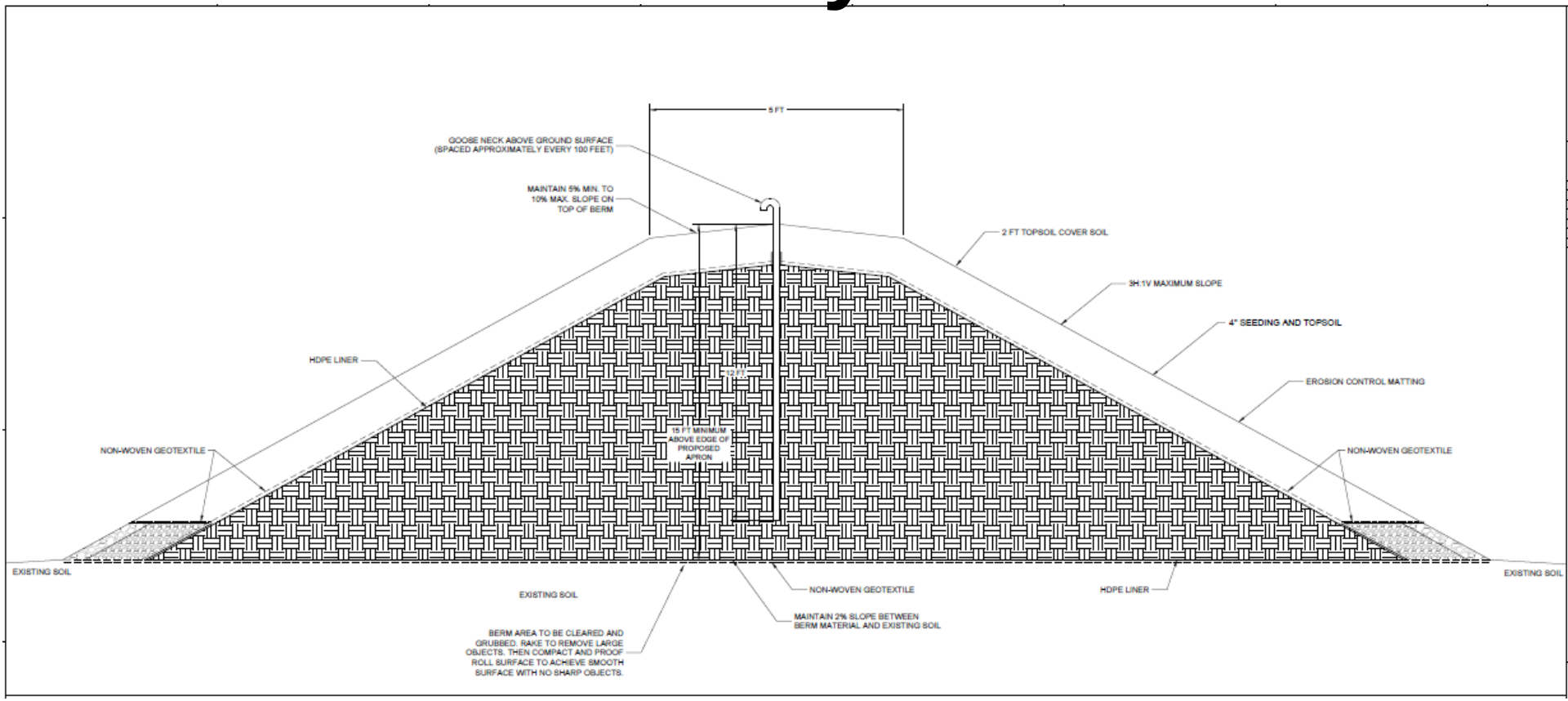


A-220
COMMERCIAL
SERVICE ARLINE
REMOTE PARKING
POSITION

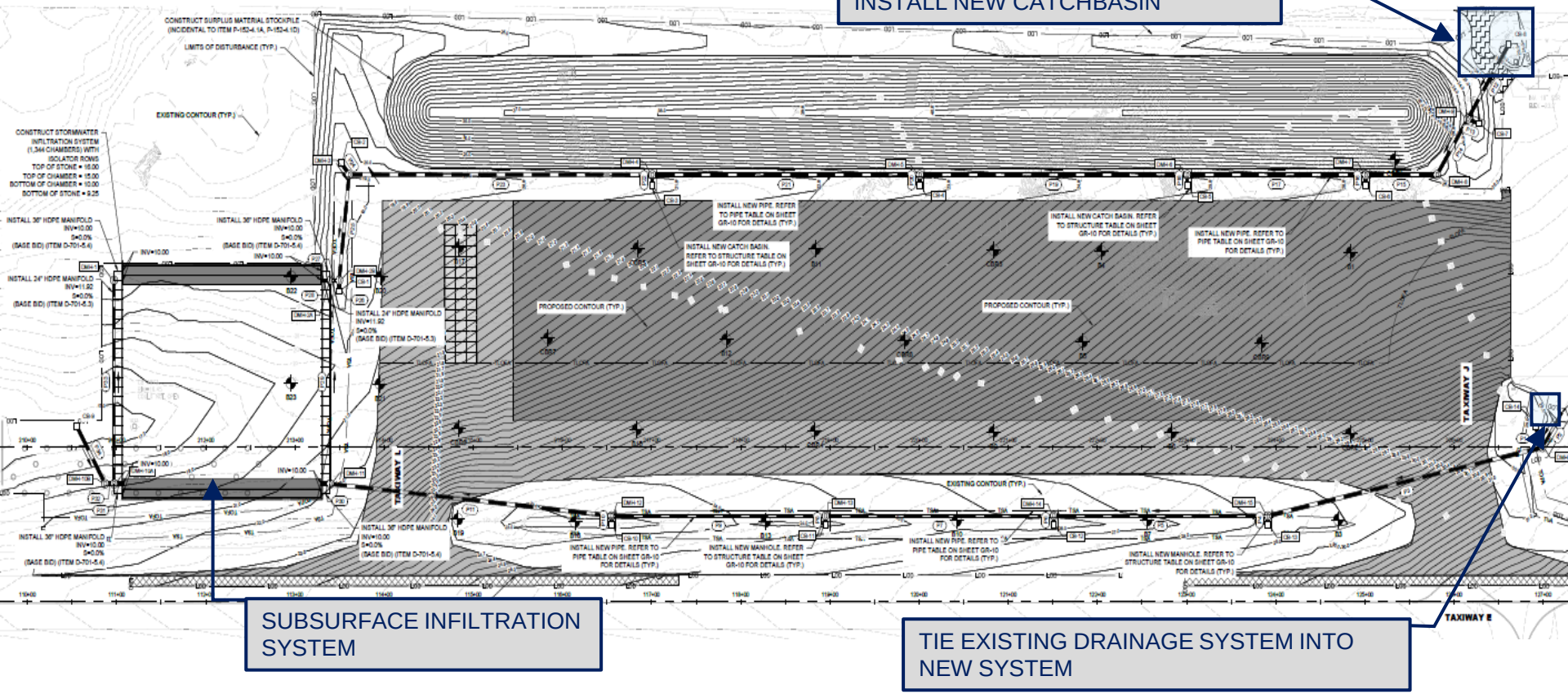
Surplus Material Stockpile Berm



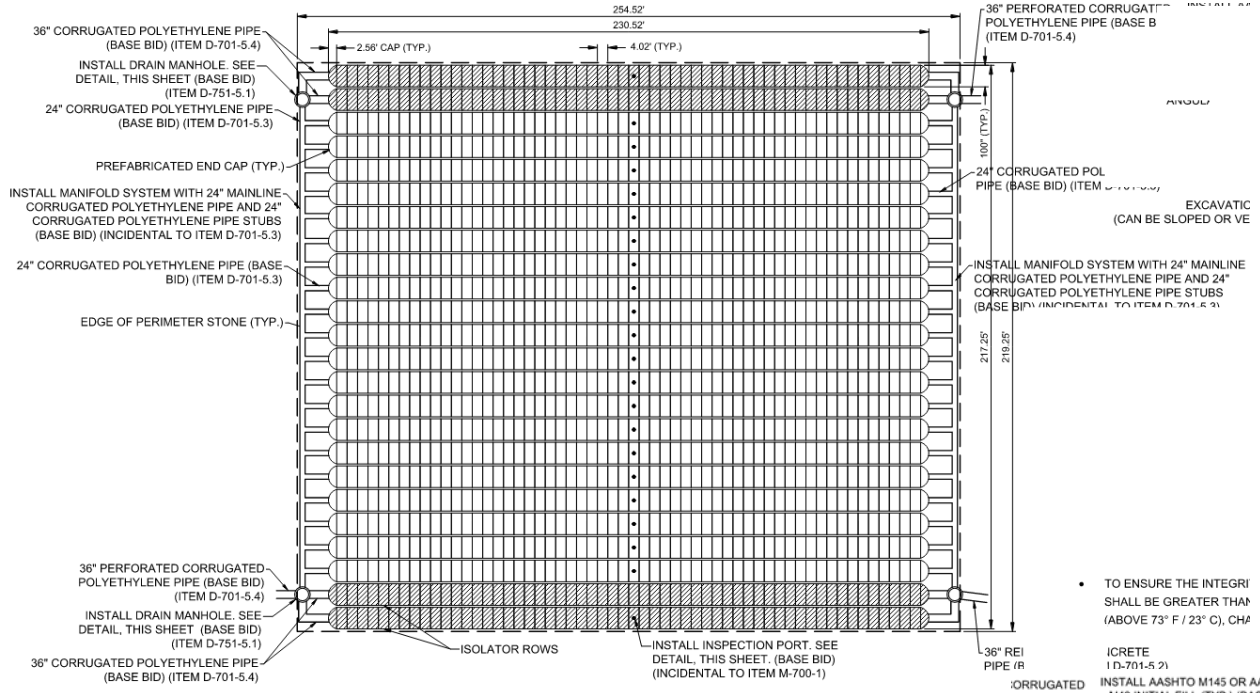
Surplus Material Stockpile Cover System

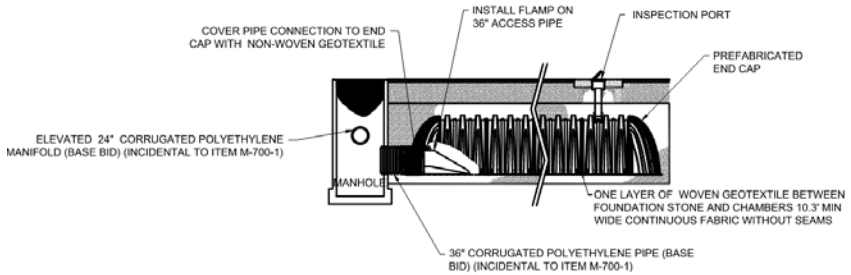

5 FT
GOOSE NECK ABOVE GROUND SURFACE (SPACED APPROXIMATELY EVERY 100 FEET)
MAINTAIN 5% MIN. TO 10% MAX. SLOPE ON TOP OF BERM
2 FT TOPSOIL COVER SOIL
3H:1V MAXIMUM SLOPE
4" SEEDING AND TOPSOIL
HDPE LINER
EROSION CONTROL MATTING
NON-WOVEN GEOTEXTILE
15 FT MINIMUM ABOVE EDGE OF PROPOSED APRON
NON-WOVEN GEOTEXTILE
EXISTING SOIL
EXISTING SOIL
NON-WOVEN GEOTEXTILE
HDPE LINER
MAINTAIN 2% SLOPE BETWEEN BERM MATERIAL AND EXISTING SOIL
BERM AREA TO BE CLEARED AND GRUBBED. RAKE TO REMOVE LARGE OBJECTS. THEN COMPACT AND PROOF ROLL SURFACE TO ACHIEVE SMOOTH SURFACE WITH NO SHARP OBJECTS.

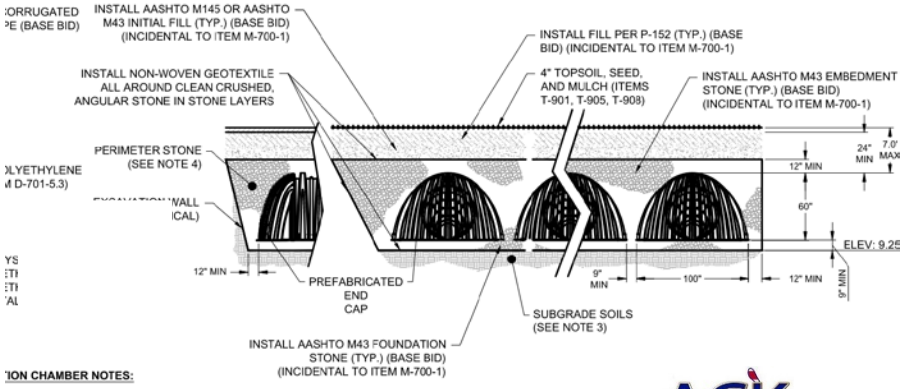
Drainage System Improvements


REGRADE & RECONSTRUCT ACCESS DRIVE TO GATE 30B AND INSTALL NEW CATCHBASIN
SUBSURFACE INFILTRATION SYSTEM
TIE EXISTING DRAINAGE SYSTEM INTO NEW SYSTEM
TAXIWAY L
TAXIWAY E
EXISTING CONTOUR (TYP.)
PROPOSED CONTOUR (TYP.)

Subsurface Infiltration System


254.52'
230.52'
2.56' CAP (TYP.)
4.02' (TYP.)
36" CORRUGATED POLYETHYLENE PIPE (BASE BID) (ITEM D-701-5.4)
INSTALL DRAIN MANHOLE. SEE DETAIL, THIS SHEET (BASE BID) (ITEM D-751-5.1)
24" CORRUGATED POLYETHYLENE PIPE (BASE BID) (ITEM D-701-5.3)
PREFABRICATED END CAP (TYP.)
INSTALL MANIFOLD SYSTEM WITH 24" MAINLINE CORRUGATED POLYETHYLENE PIPE AND 24" CORRUGATED POLYETHYLENE PIPE STUBS (BASE BID) (INCIDENTAL TO ITEM D-701-5.3)
24" CORRUGATED POLYETHYLENE PIPE (BASE BID) (ITEM D-701-5.3)
EDGE OF PERIMETER STONE (TYP.)
36" PERFORATED CORRUGATED POLYETHYLENE PIPE (BASE BID) (ITEM D-701-5.4)
INSTALL DRAIN MANHOLE. SEE DETAIL, THIS SHEET (BASE BID) (ITEM D-751-5.1)
36" CORRUGATED POLYETHYLENE PIPE (BASE BID) (ITEM D-701-5.4)
ISOLATOR ROWS
INSTALL INSPECTION PORT. SEE DETAIL, THIS SHEET. (BASE BID) (INCIDENTAL TO ITEM M-700-1)
36" PERFORATED CORRUGATED POLYETHYLENE PIPE (BASE B (ITEM D-701-5.4)
100' (TYP.)
24" CORRUGATED POL PIPE (BASE BID) (ITEM
EXCAVATIC (CAN BE SLOPED OR VE
INSTALL MANIFOLD SYSTEM WITH 24" MAINLINE CORRUGATED POLYETHYLENE PIPE AND 24" CORRUGATED POLYETHYLENE PIPE STUBS (BASE BID) (INCIDENTAL TO ITEM D-701-5.3)
217.25'
219.25'
TO ENSURE THE INTEGRI SHALL BE GREATER THAN (ABOVE 73° F / 23° C), CHA
ICRETE
INSTALL AASHTO M145 OR AASHTO M43 INITIAL FILL (TYP.) (BASE BID) (INCIDENTAL TO ITEM M-700-1)


COVER PIPE CONNECTION TO END CAP WITH NON-WOVEN GEOTEXTILE
INSTALL FLAMP ON 36" ACCESS PIPE
INSPECTION PORT
PREFABRICATED END CAP
ELEVATED 24" CORRUGATED POLYETHYLENE MANIFOLD (BASE BID) (INCIDENTAL TO ITEM M-700-1)
MANHOLE
ONE LAYER OF WOVEN GEOTEXTILE BETWEEN FOUNDATION STONE AND CHAMBERS 10.3' MIN WIDE CONTINUOUS FABRIC WITHOUT SEAMS
36" CORRUGATED POLYETHYLENE PIPE (BASE BID) (INCIDENTAL TO ITEM M-700-1)


INSTALL FILL PER P-152 (TYP.) (BASE BID) (INCIDENTAL TO ITEM M-700-1)
INSTALL NON-WOVEN GEOTEXTILE ALL AROUND CLEAN CRUSHED, ANGULAR STONE IN STONE LAYERS
4" TOPSOIL, SEED, AND MULCH (ITEMS T-901, T-905, T-908)
INSTALL AASHTO M43 EMBEDMENT STONE (TYP.) (BASE BID) (INCIDENTAL TO ITEM M-700-1)
PERIMETER STONE (SEE NOTE 4)
12" MIN
24" MIN
60"
ELEV: 9.25
12" MIN
PREFABRICATED END CAP
9" MIN
100"
12" MIN
9" MIN
SUBGRADE SOILS (SEE NOTE 3)
INSTALL AASHTO M43 FOUNDATION STONE (TYP.) (BASE BID) (INCIDENTAL TO ITEM M-700-1)
ION CHAMBER NOTES:

Summary and Contact Information

Summary:

- Federal and State-sponsored project
- Addresses existing safety and capacity issues
- Aircraft are larger, across all categories
- Ramp operational strategies define purpose
- Environmental/Social accommodation at forefront
- Above variables inform designed plans and specs

Contact Information:

- Immediate questions: 508-325-5300
- Email: cwoods@nantucketairport.com

Questions and Comments:

Help us manage the Q&A:

1. Raise your virtual hand
2. Enter your name/question in the chat feature
   (but please avoid back and forth conversations)
3. Raise your physical hand (with camera on)
4. Please minimize unmuting/speaking until recognized (unless you are on a phone only)
5. Follow up questions are welcome by phone/email